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from Leibniz's unpublished manuscripts, some of which proved to be of the greatest philosophical interest. This was followed by a scholarly work on Leibnizian logic (*La logique de Leibniz*, 1901).

It was through their common interest in Leibniz that Couturat became acquainted with the Hon. Bertrand Russell in England, whose *Philosophy of Leibniz* appeared at this time, and their relation continued to be of the friendliest. Couturat added some notes to Cadenat's French translation of Russell's *Principles of Geometry* and introduced his *Principles of Mathematics* to the French public through a series of articles later collected into a book. Readers of *The Monist* will remember his answer to Poincaré's witty sallies against logistics in the issue of October, 1912. In an introduction to this article, M. Couturat's translator, Mr. Philip E. B. Jourdain, summed up the controversy between these two brilliant Frenchmen.

In the meantime, Couturat had published his *Algèbre de la logique*. In a small monograph of less than one hundred pages he presents a concise outline of the material contained in the first two volumes of Schröder's prolix three-volumed treatise. He follows Schröder in making the notion of inclusion the fundamental notion in his calculus in preference to the idea of equality, as the English logicians had done and as Schröder also had done in the beginning, though he made the change later under the influence of C. S. Peirce. Besides brevity Couturat's little work possesses the further advantage of clear-cut precision of argument which makes it practically the most easily intelligible presentation of the subject in any language. It is for this reason that the Open Court Publishing Company only last year issued an English edition of it.

Couturat believed thoroughly in the possibilities and desirability of an international artificial language, and he and Professor Ostwald are the two leading scientific men of whom the Esperanto and Ido movements can boast. In the light of M. Couturat's high character, talents and attainments it can only seem trite and trivial to say that the world has suffered an irreparable loss in his death. L. G. R.

CURRENT PERIODICALS.

The best produced scientific magazine in Great Britain is *Science Progress in the Twentieth Century: A Quarterly Journal of Scientific Work and Thought*, which is edited by the eminent pathologist Sir Ronald Ross. The first article in the number for April 1915 is "Some Aspects of the Atomic Theory" by Frederick

Soddy. "Either matter must occupy space continuously or it must exist in the form of discrete particles. The historical origin of the atomic theory of matter is to be found in the choice between the two possible answers to these mutually exclusive alternatives....." However, "the true origin of the atomic theory is recognized universally to have been during the first decade of the last century in Dalton's discovery of the simple laws of chemical combination, though, even to the discoverer himself, the laws of gaseous behavior, upon which later the totally distinct but inextricably interwoven molecular theory was to be based, undoubtedly played a part in directing the interpretation he put upon these laws. Henceforth science was to deal no longer with atoms as the end results of a purely mental process of the subdivision of matter, a process which must of necessity have an end if matter does not occupy space continuously, but with atoms of definite mass determinable simply and exactly relatively, that is, the mass of any one kind of atom in terms of that of any other." The article, as we should expect, deals with the modern aspects. Francis Hyndman writes on "The Electrical Properties of Conductors at Very Low Temperatures," these properties indicating relations between widely different properties of matter. Arthur E. Everest writes on "The Anthocyan Pigments." The term "anthocyan" now denotes a large class of naturally occurring plant pigments, and the present article contains a very valuable account of the advances in this field of research from 1836 up to the present time. Richard Lydekker contributes a summary of "Vertebrate Palæontology in 1914." "The most important part of the year's work is undoubtedly that on the mammal-like reptiles and their structural resemblances and relationships." Charles Davison deals with "The Prevision of Earthquakes." "Between foreseeing and foretelling an unexpected event, there would seem to be little if any difference, beyond the fact that the one may be conducted in private while the other implies publication of some kind. But, to the corresponding words 'prevision' and 'prediction,' somewhat different meanings seem to be attributed, prevision being apparently considered as an approximate, and prediction as an accurate, form of forecast." This distinction is assumed in the present paper which contains a very good review of our knowledge on the subject. James Johnstone has an interesting discussion on "Is the Organism a Mechanism?" The concluding sentence of the article must be quoted here: "It may be, of course, that the activities of the organism are capable of reduction to chemical and

physical processes, all of which are to be regarded as special cases of the second law—in that event biology is only a department of physical chemistry, and our conception of life must be a mechanistic one. But so long as physiology fails to provide physico-chemical explanations of vital processes, and so long as another physics and chemistry than that of the second law [of thermodynamics] is conceivable, then a real science of biology may be possible; and to insist on a mechanistic conception of the organism is only to dogmatize.” Besides these articles, the number contains very interesting and long “Essay-Reviews” as well as shorter reviews of scientific books, and also correspondence.

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In the number of “*Scientia*” (*Rivista di Scienza*) for March, 1915, the first article is by Fritz Frech on the saline seas of Anatolia and their importance for the problem of the origin of blocks of salt in the outer surface of the earth. Eugenio Rignano brings to a conclusion his series of articles on the higher forms of reasoning. In this third part, after a summary of his former two parts on the symbolism of mathematics, he compares mathematics with the new mathematical logic, and arrives at the conclusion that, from a psychological point of view, it would be quite a mistake to hope from the symbolism of mathematical logic the immense advantages that the introduction of symbolism has had in mathematics properly so-called. The inquiry upon the war still continues: this number contains an article written in Italian by Vilfredo Pareto of Lausanne, in which an attempt is made to treat the causes of the war from an entirely objective point of view; William J. Collins has an article in English discussing the deeper origins of the war; and Eduard Meyer writes in German on “England’s War Against Germany and the Problems of the Future.” These articles, except perhaps the last, have a refreshingly scientific air about them. Georges Chatterton-Hill contributes a critical note on Treitschke’s *Ausgewählte Schriften*. There are reviews of books and periodicals, and a supplement containing French translations of the English, German and Italian articles.

In “*Scientia*” for April, 1915, the first article is by Aldo Mieli on the position of Lavoisier in the history of chemistry, in which it is brought out that Lavoisier ended a period instead of beginning one. J. W. Gregory writes on “The Reported Progressive Desiccation of the Earth,” and finds no reason for believing that the earth

is approaching a world-wide drought. The splendid scheme of "The Inquiry upon the War" continues: in this number we have articles by N. Kostyleff of Petrograd on the psychological factors of the war, by L. M. Hartmann of Vienna University on the causes of the war and by Lujo Brentano of Munch University on the deepest causes of the war. Of these three articles, the most interesting is undoubtedly the first very broad-minded study, written from the laboratory of pathological psychology of the "Ecole pratique des Hautes Etudes" of Paris. There are the usual reviews, of books and periodicals, a chronicle, and French translations of the Italian, English, and German articles. Φ

EDITORIAL COMMENT.

The opinion here expressed of the value of the *Scientia* contributions on the war represents the judgment of the English reviewer. We will only add that Eduard Meyer is a prominent historian who received the degree of doctor *honoris causa* from the University of Chicago. Writing from a German standpoint he naturally holds the English government responsible for the cause of the war. He enumerates his reasons in clear and terse language. In conclusion he predicts that unless the sea shall become equally free to all nations this war will be the beginning of further wars, and that an incidental but important result will be the unexpected growth of Japanese power and a gigantic struggle for supremacy in the Pacific and Indian oceans. Professor William J. Collins contrasts two world-conceptions, one is "science-ridden," "materialistic," in which "the state displaced the church," "matter and force are the masters," "disinterested virtue and sympathetic compassion are sacrificed to the will to power," "the will. . . heart, conscience, soul. . . [are] dismissed as so much metaphysical moonshine," "a brand new religion for Supermen." The nation that fits this description is not named but may easily be guessed if we bear in mind that the author is an Englishman who calls these curious comments "The Aetiology of the European Conflagration." This discussion of "the deeper origin of the war" has indeed "a refreshingly scientific air" about it. At any rate Professor Eduard Meyer will find this scientific conception of history refreshing. P. C.